



COMPANY PROFILE

LTV TECHNOLOGIES & SUPPLIES



Ensuring Safety in Solar Energy

ABOUT US

WHO WE ARE

LTV Technologies and Supplies is a leading provider of comprehensive safety and risk solutions for the solar industry. With a commitment to innovation and excellence, we offer a range of products and services designed to safeguard solar installations, protect investments, and mitigate risks associated with renewable energy systems.

OUR APPROACH:

At *LTV Technologies and Supplies*, we understand that the safety of solar installations goes beyond the products themselves. Our holistic approach encompasses comprehensive risk assessment, innovative solutions, and ongoing support to ensure the highest standards of safety and compliance.

OUR COMMITMENT

At *LTV Technologies and Supplies*, safety is our top priority. We are dedicated to partnering with solar industry stakeholders to create a safer and more resilient renewable energy landscape. With our innovative solutions and expertise, we empower clients to mitigate risks, protect investments, and ensure the long-term success of solar installations.

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VISION

"To pioneer a safer and more resilient solar energy landscape through innovative safety solutions, fostering sustainable growth and trust within the renewable energy industry."

MISSION

"To empower solar industry stakeholders with comprehensive safety and risk solutions, ensuring the protection of investments, the mitigation of hazards, and the promotion of safety standards. We are committed to excellence, innovation, and partnership, driving towards a future where renewable energy is synonymous with safety and reliability."

TARGET AUDIENCE



Insurance Companies



Municipalities & Fire Brigades



Private Fire and Safety Companies



Residential Homeowners with PV Installations



Businesses with PV Installations



Property Developments & Body Corporates



PV Installation & Maintenance Companies



Public Places such as Shopping Centers, Hospitals, Schools, etc



SAFEGUARDING SOLAR

INNOVATING SAFETY SOLUTIONS FOR PHOTOVOLTAIC SYSTEMS



OUR FLAGSHIP PRODUCT



PVStop is a fire retardant solution designed to make solar panels safe in emergency situations. Acting as a liquid blanket, PVStop renders panels electrically safe while also serving as a fire retardant. It interrupts solar power production by reducing DC voltage, thus preventing potential hazards such as electric shock or fire. Additionally, PV panels cannot be switched off as their source is the Sun; therefore, PVStop is one of the only products capable of effectively blocking the sun and ensuring safety.

PVStop, ensures the safety and protection of PV systems, empowering owners, emergency responders, and stakeholders with effective solutions. With PVStop, safeguard your investments and minimize risks associated with solar energy installations.

KEY BENIFITS OF PVSTOP

- **Safety Functionality:** PVStop covers solar panels, rendering them electrically safe even when partially applied. It effectively neutralizes panels within seconds, minimizing risks during emergencies.
- **Quick Application:** Our spray delivery system allows for rapid application, ensuring prompt response to emergency situations. The solution can be applied from a safe distance, ranging from 5-15 meters.
- **Fire Retardant:** PVStop is nonconductive and acts as a fire retardant solution, extinguishing flames and stopping electrical arcs.
- **Weather Resistant:** Our polymer film sticks to solar panels in all weather conditions, ensuring effectiveness even when panels are wet.
- **Reactive Solution:** Unlike preventive measures, PVStop can be applied reactively, providing immediate safety when required.
- **Environmentally Friendly:** Once its purpose is served, PVStop can be safely disposed of in domestic waste without environmental harm.

ACCREDITATIONS AND TESTS

PVSTOP is extensively accredited and tested to ensure top-notch safety and effectiveness. With ISO Certification, European Commission Verification, and compliance with stringent standards such as BS476-6 and EN45545-2, PVSTOP guarantees superior fire safety and minimal environmental impact. Endorsed for critical applications, including on drinking water reservoirs, PVSTOP exemplifies reliability and innovation in solar safety solutions.



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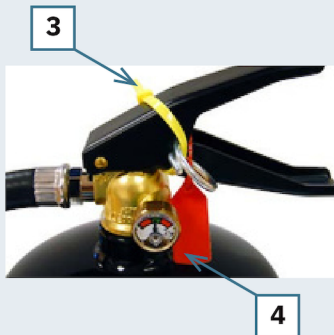
www.pvstop.co.za

9.0L SOLAR PANEL BLOCK OUT

Product Specification

▶ PRODUCT CODE :	EPVS9
▶ CAPACITY :	9 Litres
▶ AGENT TYPE :	PVSTOP (water based polymer)
▶ TOTAL WEIGHT :	14.2kg
▶ OPERATING PRESSURE :	15 barg at 20 °C
▶ DISCHARGE TIME :	70 seconds
▶ EFFECTIVE RANGE :	Up to 10 metres
▶ TEST PRESSURE :	27 barg
▶ OPERATING TEMP RANGE :	+5°C to +40°C
▶ CYLINDER CONSTRUCTION :	Mild steel
▶ CYLINDER FINISH :	Polyester
▶ VALVE FINISH :	Brass

Product Details



1 Valve	6 9.0L PVSTOP
2 Safety pin	7 agent Hose
3 Transit tie* (yellow)	8 Cylinder
4 Anti-tamper seal (red)	9 Hose clip
5 Pressure gauge	1 Wall bracket
	0

* Transit tie to be removed on commissioning

Specification subject to change without notice.





ACCREDITATION AND TESTING



PVSTOP achieved ISO Certification in 2019, ISO 14034:2016 – Environmental Management, Environmental Technology Verification (ETV).



European Commission – Environmental Technology Verification Scheme.
PVSTOP was 1 of only 4 companies (at the time of publishing in 2017) under the “Energy Technologies” category to receive a Statement of Verification from the ETV scheme.



Assessment of electrical output of PV modules, Report # 21240276.001
Testing confirmed that 40% coverage of a photovoltaic module with PVSTOP reduced the power output of the PV Module to zero.



BS 476-6 (Fire Propagation). BS476-7 (Surface Spread of Flame). Class O Granted – The highest product performance classification for lining/coating materials. EN45545-2 2013 (Smoke & Toxicity) – Test result was 9x below the required “pass” level.



PVSTOP tested for PFAS/PFOS/PFOA (these chemicals were not detected in the formulation test results).



PVSTOP Test Report – Advice on Risks to the Environment. The conclusion of the report is that the PVSTOP formulation is classified as no significant hazard to the environment.



Singapore’s National Water Agency conducted independent testing on the PVSTOP formulation because the Singapore Civil Defence Force (SCDF) recommended PVSTOP as the risk mitigation solution for the 60kW floating solar farm on the Tengeh Reservoir (Singapore’s drinking water reservoir). PUB independent testing concluded that PVSTOP is safe to use on drinking water reservoirs. .



مختبر الإمارات للسلامة
EMIRATES SAFETY LABORATORY

Emirates Safety Laboratory are currently developing a solar panel isolating coating, technical specification with a view to developing a future standard for this type of product. PVSTOP are conducting testing with ESL to procure a certificate of conformity for the (potential) new standard.

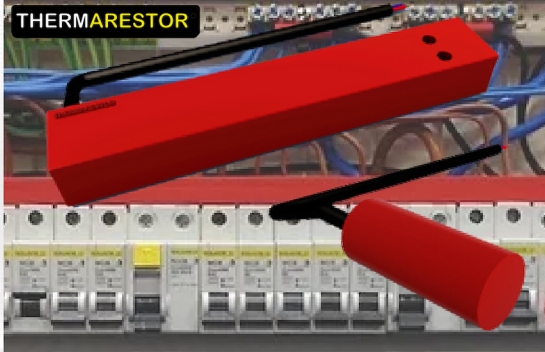


SAFEGUARDING SOLAR

INNOVATING SAFETY SOLUTIONS FOR PHOTOVOLTAIC SYSTEMS

THERMARESTOR[®]
technology transforming fire safety

FLAGSHIP PRODUCT



Thermarestor[®] is a thermal monitoring system that works by sensing abnormal heat at electrical connection points

Applications: Provides monitoring and protection of all types of electrical switchgear from domestic, through commercial to industrial including power generation by solar or wind

Safety: Protects installations by sensing heat from high resistance connections (HRC) and overload.

Installation: Can be installed quickly and is available in different sizes for various applications

Thermarestor[®] promptly responds to temperatures of $80^{\circ}\text{C} \pm 5^{\circ}\text{C}$, activating safety devices before fire signs emerge. These sensors can trigger Residual Current Devices (RCDs) or signal other approved devices, including fire and security alarms. Easy to install and compatible with routine tests,

Thermarestor[®] comes in various sizes, fitting different consumer or distribution board layouts effortlessly. Its suitability for solar applications, particularly inside PV Combiner boxes, and AC protection boxes due to the high DC volts and amps, ensures enhanced safety and protection in solar energy systems.

 **ArcBox**TM

FLAGSHIP PRODUCT



The rapid increase in solar installations heightens the risk of errors during DC connector assembly, potentially leading to fires.

Common installation mistakes include poorly crimped joints, mismatched connectors from different manufacturers, wet electrode assembly, and incomplete connector insertion.

Solar installers make millions of these connections annually, often in adverse weather conditions and challenging locations.

- The **ArcBox** enclosure offers a simple solution by securely snapping around DC connectors, preventing arc faults from spreading to combustible materials in or around solar installations.
- Independently verified by the *KIWA* fire test laboratory and Loughborough University, the effectiveness of *ArcBox* has been confirmed
- Electric arcing generates extremely high temperatures, surpassing the melting temperature of metals, making containment crucial for safety.
- **Viridian Solar** engineers have pioneered new manufacturing technologies to create *ArcBox*, utilizing materials previously limited to simple bricks or blocks, ensuring superior safety and durability.
- Ventilation and drainage ports maintain the connector within its operating temperature limits, allowing it to carry its rated current while preventing moisture accumulation, further enhancing safety and reliability.



SAFEGUARDING SOLAR

INNOVATING SAFETY SOLUTIONS FOR PHOTOVOLTAIC SYSTEMS



STRING LEVEL RAPID SHUTDOWN

FLAGSHIP PRODUCT



Rapid Shutdown YRSD-A series firefighter safety switch is designed to disconnect the DC current flow between solar panels and inverter. It is used as a safety measure to remove the high voltage DC power in the PV string and reduce the risk of electric fire. The switch is particularly useful for firefighters and emergency personnel who need to access a building or structure equipped with photovoltaic (PV) systems.

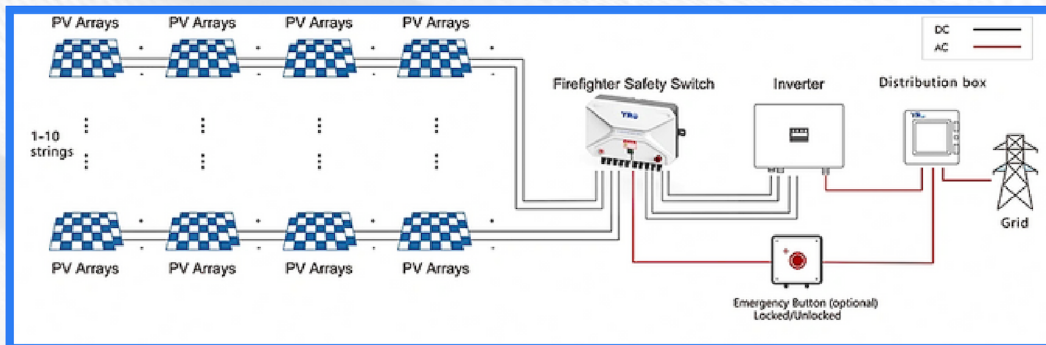
Location of the Rapid Shutdown:

The Rapid Shutdown needs to be placed as close to the solar panels as possible. Due to its enclosure, the switch is protected against external influences like dust and moisture. The whole set-up is conformed to IP66 which makes it suitable for outdoor usage.

The application of rapid shutdown in daily life extends beyond PV system installations. While the primary purpose of rapid shutdown is to enhance safety in the context of DC power systems, there are other scenarios where similar principles can be applied.

Max DC voltage and current according to IEC/EN 60947-3 is 26A with 1500VDC & 50 A on 800VDC

1-10 Sting in and out Models available



MONITOR & DC ARC FAULT DETECTOR



The DC-Monitor product is mainly used in DC power transmission and distribution, such as combiner boxes and DC cabinets. Its main function is the real-time monitoring of the generation current, voltage, temperature of the combiner box, lightning arrester status, DC circuit breaker status, and DC Arc Fault Status of each photovoltaic string in the combiner box. It communicates with the host computer through RS485.

- Maximum System voltage is 1500V DC, the Hall sensor on the Maximum voltage is 20A for 4 strings.
- Maximum of 8 Hall strings per monitor (Monitor Max 32 Strings)
- Available from June 2024, pre-orders can be made.

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Ensuring Safety in Solar Energy



EXPANDING NETWORKS

BUSINESS PARTNERS, RESELLERS, AND REPRESENTATIVES



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LTV Technologies and Supplies, your premier distributor specializing in safety solutions for renewable energy. With years of expertise, we've identified critical risks within systems and are proud to introduce PVSTOP to the South African market. As the exclusive distributor for PVSTOP in South Africa, we prioritize maintaining the product's premium quality by working through trusted partners, distributors, and resellers.



www.sbdirect.org

SBD Business Systems brings a wealth of experience across various fields, which positions them strategically to assist LTV with the distribution of the product. This collaboration extends beyond product distribution, as SBD can leverage its expertise to help establish financing options, making PVStop available on a rental basis, sales and marketing with some key stakeholders.



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With **Real Fire Suppression's** experience and regional presence, the partnership is poised to make a significant impact on enhancing safety and fire prevention measures in the solar energy sector in South Africa and beyond. This strategic alliance is indeed a positive step toward ensuring the widespread adoption and success of PVStop in the market.

TRAINING:

Fire Risk Consultancy, are dedicated to providing a comprehensive suite of courses designed to enhance safety and preparedness in various sectors.

One of our specialized courses, the Solar PV Safety Training – Risk and Solutions for First Responders, addresses the critical need for expertise in dealing with incidents involving solar panels. This course is developed together with PVStop, currently they are waiting for accreditation from FIA. As it stands our course will be CPD registered - 26/03/2024

THERMOGRAPHY

This marks the next stride in our company's evolution as we aim to incorporate it as one of our essential services. Thermography is an indispensable aspect to include within the Solar PV Sector, as it utilizes infrared technology to detect anomalies that may go unnoticed by the naked eye or traditional electric meters. Presently, we do not have an in-house expert capable of producing certification reports, we have established partnerships with companies specializing in thermography, to whom we can refer your inquiries.

The services range from handheld inspections to ensure the absence of hot connections and panel issues, to comprehensive drone inspections for large-scale solar plants, conducted within regulatory guidelines by registered drone pilots with approved flight schedules and plans. For inquiries, please contact us at info@ltvtech.co.za.

If you're interested in becoming trained and certified, you can enroll in an ITC course with **Thermal-I**. For further details, visit our PVStop website ([Click Here](#)) to access the inquiry form.